Annual Report of Operations for Year 2018

To comply with NPDES General Permit No. WAG130000 for Federal Aquaculture Facilities and Aquaculture Facilities Located in Indian Country within the Boundaries of the State of Washington

NPDES # for your Facility:
WAG-13-0017

Facility & Owner Information

Facility Name: Skookum Creek Hatchery	
Operator Name (Permittee): Lummi Indian Business Council	
Address:	
Physical Adress: 6498 Saxon Rd Acme, WA 98220	Lummi Indian Business Council 2665 Kwina Road Bellingham, WA 98226
Email: tomc@lummi-nsn.gov	Phone: 360-595-2142
Owner Name (if different from operator):	
Email:	Phone:

Best Management Practices (BMP) Plan

Has the BMP Plan been reviewed this year? ■ Yes ☐ No

Does the BMP Plan fulfill the requirements of the General Permit? ■ Yes ☐ No

Summarize any changes to the BMP Plan since the last annual report. Attach additional pages if necessary.

BMP was updated to account for personnel changes, sampling locations, and clarification of effluent limitations.

Operations and Production

Total harvestable weight produced in the past calendar year in pounds (lbs): 86,337

Pounds of food fed to fish during the maximum month: 10,927

List the species grown or held at your facility and the annual production of each in gross harvestable weight. If fish were released rather than harvested, list the weight at time of release.

Species	Fish Produced	Receiving Water(s) to which Fish were Released	Month Released/ Spawned
Chinook Salmon	15,790	South Fork Nooksack River	June
Coho Salmon	70,587	South Fork Nooksack River	May

Fill in the table below with production numbers from the past year. List the **maximum** amount of fish on-site and the maximum amount of food fed **per month**.

Month	Total Fish (lbs)	Fish Feed (lbs)	Month	Total Fish (lbs)	Fish Feed (lbs)
January	35,413	2,556	July	11,471	3,368
February	47,273	7,271	August	14,529	5,368
March	56,015	8,482	September	18,826	704
April	67,096	7,909	October	27,817	880
May	81,483	10,927	November	32,100	1,144
June	26,574	2,813	December	36,592	3,256

Additional Comments: Please note that coho salmon produced is the weight of yearling smolts released and does not include total subyearling weight as they will not be released until May 2019.

Solid Waste Disposal

Describe the solid waste disposed of during the calendar year (including fish mortalities).

Type of Solid Disposed	Date Disposed	Location Disposed
Fecal Waste (from yearling pond drawdowns)	June	Sewage Treatment
Juvenile Mortalities	Daily (or as needed)	Septic System
Adult Carcasses	Weekly (August-December)	Crab bait, nutrient enhancement

Additional Comments:

A septic pumping company removed fish waste from the primary abatement system and transferred it to a sewage treatment plant.

Fish Mortalities

Include a description and the dates of mass mortalities in the past year (more than 5% per week). Attach additional pages, if necessary. Include total mortalities from all causes.

Date	Cause of Deaths	Steps Taken to Correct Problem	Pounds of Fish
N/A	N/A	N/A	N/A

Additional Comments:

No mass mortality events.

Noncompliance Summary

Include a description and the dates of noncompliance events (including spills), the reasons for the incidents, and the steps taken to correct the problems. Attach additional pages, if necessary.

The November DMR TSS value for drawdown at the brood pond exceeded the effluent limit by net 172 mg/L (272 mg/L gross). However, this drawdown sample occurred when the influent TSS value was 348 mg/L due to flood stage levels in Skookum Creek. The water was shut off to the brood pond immediately before the pond was being drawn down per protocol. This situation has not been observed before in recent history, so the hatchery staff members did not anticipate that the drawdown effluent could exeed the limit by such a large amount.

There is no known realistic change to procedure that could have prevented this exceedence because the influent TSS result was a record concentation in recent history caused by abnormally high stream flow for this time of year.

Inspections & Repairs for Production & Wastewater Treatment Systems

Date Inspected	Date Repaired	Description of System Inspected and/or Repaired
Monthly	N/A	Abatement system, vacuum systems, and waste drainlines
Weekly	N/A	Water delivery lines, fish ladder, pumps, filters, and valves

Aquaculture Drugs and Chemicals

Please indicate whether you used each drug/chemical **during the past calendar year.**
Describe the use of each drug/chemical in more detail on the following pages.

Used in the past year?	Drug or Chemical
☐ Yes ☒ No	Azithromycin
☐ Yes ☒ No	Chloramine-T: ***See additional reporting requirements on page 7***
☐ Yes ☒ No	Chlorine
☐ Yes ☒ No	Draxxin
☐ Yes ☒ No	Erythromycin - injectable
☐ Yes ☒ No	Erythromycin - medicated feed
☒ Yes ☐ No	Florfenicol (Aquaflor)
☐ Yes ☒ No	Formalin - 37% formaldehyde: ***See additional reporting requirements on page 7***
☐ Yes ☒ No	Herbicide - describe:
☐ Yes ☒ No	Hormone - describe:
☐ Yes ☒ No	Hydrogen Peroxide: ***See additional reporting requirements on page 7***
☒ Yes ☐ No	Iodine: ***See additional reporting requirements on page 7***
☐ Yes ☒ No	Oxytetracycline
☐ Yes ☒ No	Potassium Permanganate: ***See additional reporting requirements on page 7***
☒ Yes ☐ No	Romet
☐ Yes ☒ No	SLICE (emamectin benzoate)
☐ Yes ☒ No	Sodium Chloride - salt
☒ Yes ☐ No	Vibrio vaccine
☐ Yes ☐ No	Other:
☐ Yes ☐ No	Other:

Aquaculture Drugs and Chemicals (cont'd)

Describe all drug and/or chemical treatments that occurred during the year. Fill out the information below for each drug or chemical, plus page 7 for water-borne treatments. Attach additional pages as necessary.

Brand Name: Aquaflor		Generic Name: Florfenical	
Reason for use: Treatment of detected bacterial coldwater disease			
☐ Preventative/Prophylactic ■ As-needed	Total quantity of formulated product per treatment (specify units): 61.6 pounds	Total quantity of formulated product used in past year (specify units): 616 pounds	
Date(s) of treatment: April 25-May 4			Total number of treatments in past year: 1
Maximum daily volume of treated water: N/A	Treatment concentration (specify units): 15mg/kilogram	Duration and frequency of treatment(s): Daily for 10-day prescribed treatment	
Method of application:	☐ Static Bath ☐ Flow-through	■ Medicated Feed ☐ Other (describe):	
Location in facility chemical was used (check all that apply):	■ Raceways ☐ Incubation building	☐ Ponds ☐ Off-line settling basin	☐ Other (describe):
Where did water treated with this chemical go? (check all that apply):	■ Discharged w/o treatment ☐ Settling basin	☐ Septic System ☐ Publicly owned treatment works	☐ Other (describe):
Provide any additional information about how this chemical was used and/or special pollution prevention practices during use:			

Brand Name: Romet		Generic Name: Sulfadimethoxine/Ormetoprim	
Reason for use: Used to treat suspected enteric redmouth disease (ERM)			
☐ Preventative/Prophylactic ■ As-needed	Total quantity of formulated product per treatment: 2.5 pounds	Total quantity of formulated product used in past year (specify units): 2.5 pounds	
Date(s) of treatment: March 9-13			Total number of treatments in past year: 1
Maximum daily volume of treated water: N/A	Treatment concentration (specify units): 15mg/kilogram	Duration and frequency of treatment(s): Daily for 5-day prescribed treatment	
Method of application:	☐ Static Bath ☐ Flow-through	■ Medicated Feed ☐ Other (describe):	
Location in facility chemical was used (check all that apply):	■ Raceways ☐ Incubation building	☐ Ponds ☐ Off-line settling basin	☐ Other (describe):
Where did water treated with this chemical go? (check all that apply):	■ Discharged w/o treatment ☐ Settling basin	☐ Septic System ☐ Publicly owned treatment works	☐ Other (describe):
Provide any additional information about how this chemical was used and/or special pollution prevention practices during use:			

Aquaculture Drugs and Chemicals (cont'd)

Describe all drug and/or chemical treatments that occurred during the year. Fill out the information below for each drug or chemical, plus page 7 for water-borne treatments. Attach additional pages as necessary.

Brand Name: Ovadine		Generic Name: Buffered PVP Iodine (1%)	
Reason for use: Control and prevention of *Saprolegnia*			
■ Preventative/Prophylactic ☐ As-needed	Total quantity of formulated product per treatment (specify units):	Total quantity of formulated product used in past year (specify units): 45 gallons	
Date(s) of treatment: Mid-September to early December daily			Total number of treatments in past year: Approximately 60
Maximum daily volume of treated water: <3,000 liters per day	Treatment concentration (specify units): 100ppm	Duration and frequency of treatment(s): Duration of 10 minutes twice per day	
Method of application:	☐ Static Bath ■ Flow-through	☐ Medicated Feed ☐ Other (describe):	
Location in facility chemical was used (check all that apply):	☐ Raceways ■ Incubation building	☐ Ponds ☐ Off-line settling basin	☐ Other (describe):
Where did water treated with this chemical go? (check all that apply):	■ Discharged w/o treatment ☐ Settling basin	☐ Septic System ☐ Publicly owned treatment works	☐ Other (describe):
Provide any additional information about how this chemical was used and/or special pollution prevention practices during use:			

Brand Name: N/A		Generic Name: *Vibrio* vaccine	
Reason for use: Prevention of vibriosis caused by *Vibrio anguilarum*			
■ Preventative/Prophylactic ☐ As-needed	Total quantity of formulated product per treatment: 1 quart	Total quantity of formulated product used in past year (specify units): 4 gallons	
Date(s) of treatment: March 15-18			Total number of treatments in past year: 16
Maximum daily volume of treated water: Approx. 25 gallons	Treatment concentration (specify units): 1:100 dilution	Duration and frequency of treatment(s): 30 second bath for 200k fish at tagging	
Method of application:	■ Static Bath ☐ Flow-through	☐ Medicated Feed ☐ Other (describe):	
Location in facility chemical was used (check all that apply):	☐ Raceways ☐ Incubation building	☐ Ponds ☐ Off-line settling basin	■ Other (describe): Used in 30 gallon tub
Where did water treated with this chemical go? (check all that apply):	☐ Discharged w/o treatment ■ Settling basin	☐ Septic System ☐ Publicly owned treatment works	☐ Other (describe):
Provide any additional information about how this chemical was used and/or special pollution prevention practices during use: Vaccine static bath water is discharged to the offline settling basin after use.			

Aquaculture Drugs and Chemicals (cont'd)

Additional Reporting Requirements for Water-Borne Treatments

- If a water-borne treatment was used during the calendar year, Permittees must include detailed records/calculations as an attachment to this Annual Report in order to demonstrate how the maximum effluent concentrations of solution and active ingredient were calculated for each chemical.
- EPA recognizes that water-borne treatments may vary in the volume of the vessels treated, concentration, quantity of product, etc. Permittees must provide the information listed in the following tables for a reasonable worst case (i.e., maximum effluent concentration) scenario, not for each individual treatment.
- Permittees must submit this information and calculate the maximum effluent concentration for each water-borne chemical used during the past calendar year.
- See also Appendix D for the Chemical Log Sheet.

Static Bath Treatments	
Tank Volume	Liters
Desired Static Bath Treatment Concentration	µg/L
Volume of Product Needed	Liters Product
Maximum Effluent Concentration of: 1) Solution and 2) Active Ingredient	Solution: Active Ingredient: Specify Units
Minimum Volume of Total (treated + untreated) Water Discharged from the Facility per day	Specify Units
Maximum % of Facility Discharge Treated	% of Total Discharge

Flow-Through Treatments	
Tank Volume	267.4 or 9.46 Liters
Calculated Flow Rate	34 or 15 Liters/Minute
Duration of Treatment	10 Minutes
Desired Flow-Through Treatment Concentration of Product	100,000 µg/L
Amount of Product to Add Initially	0.2L or 0.1L (per incubator) Liters Product
Amount of Product to Add During Treatment	200mL or 100mL mL/Minute
Total Volume of Product Needed	0.2L or 0.1L per incubator Liters Product
Maximum Effluent Concentration of: 1) Solution and 2) Active Ingredient	Solution: 0.00047ppm Active Ingredient: 0.0000047ppm Specify Units
Minimum Volume of Total (treated + untreated) Water Discharged from the Facility per day	16,637,760 liters Specify Units
Maximum % of Facility Discharge Treated	1.25% % of Total Discharge

Changes to the Facility or Operations

Describe any changes to the facility or operations since the last annual report.
None to report.

Signature and Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly evaluate and gather the information submitted. Based on my inquiry of the person or persons, who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Printed name of person signing	Title
Merle Jefferson Sr.	Natural Resources Executive Director
Applicant Signature Merle Jefferson	Date Signed 1-17-19

Submittal Information

Send the complete, signed information, along with any attachments, to the following address:

U.S. EPA Region 10, OWW-191

Washington Hatchery Annual Report

1200 Sixth Avenue, Suite 900

Seattle, WA 98101-3140

Attachment 1 - Calculations for Skookum Creek Hatchery PVP Iodine (Ovadine)

Calculations for Flow-Through

Incubator Type	# Incubators	Water Flow per Incubator		Incubator Volume (L)	Turnover Rate (min) [X 8 for Heath]	Treatment Volume (L)	Total Incubation Effluent (LPM)	Total Treatment Volume (L)	Instantaneous % Iodine in Incubation Effluent	Total Hatchery Effluent (LPM)	Proportion of Max. Instantaneous Iodine in Hatchery Effluent	Proportion Iodine in Effluent over 10 Mins	Instantaneous 1% Active Iodine in Effluent (L)
		GPM	LPM										
Nopad	7	9	34	267.4	7.86	0.2	238	1.4	0.59%	11,554	0.00012	0.000012	0.0000012
Heath Stacks	40	4	15	9.46	5.05	0.1	600	4	0.67%		0.00035	0.000035	0.0000035
Total							**838**	**5.4**	**1.25%**		**0.00047**	**0.000047**	**0.0000047**

Calculations for Required Treatment Volume

Incubator Type	Incubator Volume (L)	Influent Flow (Lpm)	Influent Flow (LPH)	Turnover (hr)	Target 100ppm (ratio)	Desired Exposure Duration (min)	L Iodine Required (LPH/target ppm)
Nopad	267.4	34	2040	0.131	10000	10	0.204
Heath Stacks	9.46	15	900	0.011	10000	10	0.09

Note: The effluent calculations are based upon a worst case scenario where **all** incubators are filled and requiring treatment at the same time. In reality, this is not realistic due to the timing differences of spawning for spring chinook and coho. Breaking down the treatments on a realistic schedule would be difficult to calculate and highly confusing for anyone evaluating the calculations due to 2 incubators types and 2 different purposes for treatment.